

## CLAIMS

What is claimed is:

- 5           1.       A medical communications system, the system comprising:  
          an imaging system;  
          a low earth orbit transceiver coupled to the imaging system, wherein the low  
earth orbit transceiver receives command data and transmits operational data to a service  
center; and  
10           a satellite based positioning system receiver coupled to the imaging system,  
wherein the satellite based positioning system receiver obtains a plurality of position  
signals from a plurality of position satellites to determine a position of the imaging  
system.
- 15           2.       The system of claim 1, wherein the imaging system is located in a  
vehicle.
3.       The system of claim 1, wherein the imaging system comprises at least  
one monitor for monitoring at least one operational condition of the imaging system and  
20           providing at least one operational condition to the service center.
4.       The system of claim 3, wherein the imaging system comprises a  
magnetic resonance imaging system.
- 25           5.       The system of claim 4, wherein the at least one monitor comprises a  
smart helium meter.
6.       The system of claim 4, wherein the at least one monitor comprises a  
plurality of sensors that measure a level of liquid helium within the magnetic resonance  
30           imaging system.

7. The system of claim 3, wherein the at least one monitor comprises a cooling system monitor.

8. The system of claim 3, wherein the imaging system comprises a  
5 computed tomography system.

9. The system of claim 3, wherein the operational data comprises position data and at least one operational condition.

10. The system of claim 1, wherein the satellite based positioning system receiver comprises a global positioning system receiver.

11. A method for communicating data with a medical imaging system, the method comprising the steps of:

15 monitoring an imaging system for monitored data;  
receiving a plurality of position signals from a plurality of satellites;  
determining location information of the imaging system from the plurality of position signals; and  
transmitting operational data from the imaging system to at least one service  
20 center via a low earth orbit satellite system, wherein the operational data comprises the monitored data and the location information.

12. The method of claim 11, comprising the further step of the at least one service center responding to the operational data.

13. The method of claim 11, comprising the further step of acquiring monitored data from at least one monitor coupled to the imaging system.

14. The method of claim 11, comprising the further step of polling the at  
30 least one monitor coupled to the imaging system.

15. The method of claim 14, wherein the imaging system comprises a magnetic resonance imaging system.

16. The method of claim 15, wherein the at least one monitor comprises a smart helium meter.

17. The method of claim 11, comprising the further step of encoding the operational data in hexadecimal format.

18. The method of claim 11, wherein the operational data received at the at least one service center comprises monitored data associated with an operational condition of the imaging system and position data associated with the location of the imaging system.

19. The method of claim 11, wherein the low earth orbit satellite system comprises a plurality of low earth orbit satellites.

20. A computer program that is stored on one of more tangible mediums for communicating data with a medical imaging system, the program comprising:

a routine for accessing monitored data associated with an imaging system;  
a routine for determining a position of the imaging system from a plurality of signals; and

a routine for transmitting operational data from the imaging system to a service center via a low earth orbit satellite system.

21. The computer program, as set forth in claim 20, comprising a routine for integrating the position of the imaging system and the monitored data into the operational data for transmission to the service center.

22. The computer program, as set forth in claim 20, comprising a routine for encoding the operational data into a hexadecimal format for transmission to the service center.

5 23. The computer program, as set forth in claim 20, wherein the imaging system comprises a magnetic resonance imaging system.

24. The computer program, as set forth in claim 23, wherein accessing comprises polling a smart helium meter coupled to the imaging system for monitored data.  
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25. The computer program, as set forth in claim 20, wherein transmitting the operational data comprises communicating the operational data through a plurality of low earth orbit satellites.  
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26. A system for communicating data with an imaging system, the system comprising:

means for monitoring at least one imaging system for a plurality of operational conditions;

20 means for determining a position of at least one imaging system from a plurality of position signals; and

means for communicating the plurality operational conditions and the position to at least one service center via a low earth orbit satellite system.